

## REMARKS/ARGUMENTS

Applicants acknowledge receipt of the Office Action dated April 4, 2008. Claims 1-10, 23, and 27-32 are pending in the application. Claims 19-21 have been cancelled. Claims 1, 8, 23, and 29-31 have been amended. New claims 33-35 have been added. No new matter is added by these claims.

In the Office Action, claims 1-10, 23, 27 and 28 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite. In addition, claims 1-20, 23, 27, and 28 are rejected under 35 U.S.C. §103(a) as being unpatentable over Yan *et al.*, U.S. Patent No. 5,830,539 ("*Yan*") in view of Lei *et al.*, U.S. Patent No. 6,777,445 ("*Lei*") and further in view of Stahl *et al.*, U.S. Patent No. 5,470,843 ("*Stahl*"). Applicants believe all pending claims are allowable over the art of record and respectfully request reconsideration and allowance of all claims.

### I. Interview Summary

Applicants would like to thank the Examiner for timely conducting an interview at Applicants' request. At this point in time, Applicants have not received an Interview Summary from the Examiner. However, to summarize, Attorney for Applicants (Albert K. Shung) contacted Examiner Melissa Perriera to request an interview, which was held on June 26, 2008 by telephone. In the Interview, Attorney for Applicants offered some possible amendments to the claims, but the Examiner did not believe the offered amendments would overcome the prior art. No agreement was reached during the Interview.

### I. Claims 1-10, 23, 27 and 28 are definite

The Examiner has rejected claims 1-10, 23, 27, and 28 under 35 U.S.C. §112, second paragraph for written description. In particular, the Examiner states that the claim does not provide sufficient structure to the linking molecule. Claims 1 and 23 have been amended to recite "at least one linking molecule comprising a malonate, a serinol, or combinations thereof." Applicants believe the amendments recite sufficient structure and therefore, addresses the Examiner's concerns. As such, Applicants respectfully request withdrawal of the rejection.

### II. Claims 1-10, 23, and 27-32 are patentable over Yan in view of Lei and further in view of Stahl.

The Examiner has rejected claims 1-10, 23, and 27-32 under 35 U.S.C. § 103(a) as being unpatentable over Yan in view of Stahl and Lei. "The key to supporting any rejection under 35

U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious." See MPEP § 2143 (2007). To establish obviousness, each of the claim limitations must be taught or suggested by the prior art. See *CFMT, Inc. v. YieldUp Int'l Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) (citing *In re Royka*, 490 F.2d 981, 985 (CCPA 1974)). In addition, "[i]f an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious." MPEP § 2143.03 (2007) (citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)). Applicants respectfully submit that the a case of obviousness has not been established in rejecting claims 1-10, 23, and 27-32 because the cited references do not teach or suggest all the claim limitations of claims 1-10, 23, and 27-32.

Claims 1 and 23 are independent claims upon which claims 2-10 and 27-32 and new claims 33-35 depend. Claim 1 recites "at least one linking molecule comprising a malonate, a serinol, or combinations thereof." *Yan* does not teach or suggest such limitations. Instead, *Yan* is directed to use of N-hydroxysuccinimide compounds to couple bioactive materials to a substrate surface. Specifically, *Yan* teaches functionalizing reagents (i.e. linking molecules) having at least one nitrenogenic group. The covalent bonding of the nitrenogenic group requires the use of UV exposure to initiate the reaction. In addition, the Examiner, herself, notes *Yan* does not teach or suggest use of malonate, a serinol, or combinations thereof as a linking molecule. Applicants again stress *Yan* is focused on *bulk surface modification* rather than modification at the molecular level. See *Yan*, Examples 1-58. It is notable that not a single example in *Yan* teaches modification at the molecular level. Significantly, *Yan* defines a substrate as "a non-fluid material providing a surface that can be functionalized." *Yan*, col. 9, lns. 14-15 (Emphasis added).

Moreover, *Yan* does not teach at least two antibiotic molecules are coupled to the fullerene molecule via the at least one linking molecule. The primary "linking" molecule in *Yan* is an N-hydroxysuccinimide active ester (NHS-PPFA). This linking molecule only has one available group for further reaction once coupled to the substrate surface. See *Yan*, Schemes 1-10. It is clear that *Yan* does not contemplate at least two antibiotic molecules are coupled to the fullerene molecule via the at least one linking molecule. Thus, nothing in *Yan* teaches or suggests use of a malonate, a serinol, or combinations thereof as a linking molecule for coupling at least two antibiotic molecules to a fullerene molecule.

*Stahl* also does not teach the missing limitations. *Stahl* teaches a carbohydrate portion linked by a spacer to a hydrophilic polymer having a potentiator moiety. According to *Stahl*, the potentiator moiety may be a hydrophobic molecule such as a fullerene. Although *Stahl* teaches use of antibiotics, the antibiotics are coupled to the hydrophilic polymer itself, not to the potentiator moiety. Regardless, *Stahl* does not teach or suggest a linking molecule comprising a malonate, a serinol, or combinations thereof.

*Lei* also cannot supply the missing limitations to *Stahl* and/or *Yan*. *Lei* is directed to water soluble fullerenes without any antibiotics or targeting agents whatsoever. During the Interview on June 26, 2008, the Examiner pointed out that *Lei* teaches carboxylic acid groups attached to the fullerenes. However, these carboxylic acid groups are used to make the fullerene water soluble, not as a linking molecule. Thus, the mere recitation of carboxylic acid groups in Formula I do not equate to the use of malonate or serinol as a linking molecule for at least two antibiotic molecules. In addition, *Lei* does not contemplate two different types of functional groups. Both Formula I and Formula II only teach substituents of one type coupled to the fullerene. *Lei* does not teach or suggest a targeting agent and at least two antibiotic molecules coupled to a fullerene. Accordingly, *Lei* cannot possibly teach the missing limitations.

Applicants further assert that there would be no reasonable expectation of success in combining the cited references. *Yan* is entirely directed to the use of UV-reactive compounds (NHS-PPFA) for bulk modification of substrate surfaces. On the other hand, *Lei* merely is directed to the use of water-solubilized fullerene molecules as an anti-bacterial agent. One of ordinary skill in the art would not reasonably expect to be successful in combining the teachings of *Yan* and *Lei* when the chemistries are completely different. Applicants fail to see how one of ordinary skill in the art could somehow extrapolate successful coupling of malonate or serinol as a linking molecule for at least two antibiotic molecules to a fullerene molecule from the teachings of *Yan* and *Lei*. In addition, chemistry is notorious for being an unpredictable art. MPEP § 2164.03. The mere mention of carboxylic acid groups by *Lei* does not mean one of ordinary skill would be successful in coupling at least two antibiotics to a fullerene, especially when *Lei* does not mention any suitable techniques nor does *Lei* discuss the possibility of coupling antibiotics to the fullerene. The teachings of *Stahl* could also not be successfully combined with the other references because *Stahl* only teaches coupling of antibiotics to a

hydrophilic polymer. In light of the above, one of ordinary skill in the art could not have successfully combined the claimed elements by the methods disclosed in the cited references.

Applicants therefore respectfully submit that the claims 1 and 23 are not obvious over the cited references because, the references do not teach or suggest all of the elements recited in the rejected claims and also because there was no reasonable expectation of success. Accordingly, Applicants respectfully request that the Examiner withdraw the § 103 rejections and allow claims 1-10, 23, and 27-35. Since independent claims 1 and 23 are submitted to be allowable, dependent claims 1-10, and 27-35 must *a fortiori* also be allowable, as they carry with them all the limitations of claims 1 and 23.

**III. Conclusion**

Applicants respectfully request reconsideration, allowance of the claims, as amended, and a timely Notice of Allowance be issued in this case. If the Examiner feels that a telephone conference would expedite the resolution of this case, the Examiner is respectfully requested to contact the undersigned.

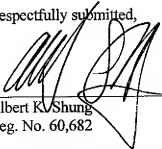
In the course of the foregoing discussions, Applicants may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the prior art that have yet to be raised, but which may be raised in the future.

If any fees are inadvertently omitted or if any additional fees are required or have been overpaid, please appropriately charge or credit those fees to Conley Rose, P.C. Deposit Account Number 03-2769.

Date: 6/27/2008

CONLEY ROSE, P.C.  
P. O. Box 3267  
Houston, Texas 77253-3267  
Tel: (713) 238-8000  
Fax: (713) 238-8008

Respectfully submitted,



Albert K. Shung  
Reg. No. 60,682

*ATTORNEY FOR APPLICANTS*